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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.				
10/731,874	12/09/2003	Ruben F. Lah	9312.52	6740				
21999 KIRTON AND MCCONKIE 60 EAST SOUTH TEMPLE, SUITE 1800 SALT LAKE CITY, UT 84111	7590 12/11/2007		<table border="1"><tr><td colspan="2">EXAMINER</td></tr><tr><td colspan="2">LEUNG, JENNIFER A</td></tr></table>		EXAMINER		LEUNG, JENNIFER A	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/731,874	Applicant(s) LAH, RUBEN F.	
	Examiner Jennifer A. Leung	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2007 and 18 June 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-58 is/are pending in the application.
- 4a) Of the above claim(s) 11-46 and 53-58 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 47-52 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-58 are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

*Jennifer A. Leung*

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election of Group VIII, claims 47-52 (drawn to a "sliding blind gate-type de-header valve"), in the reply filed on September 26, 2007 is acknowledged. However, upon a further review of the claims, the requirement for restriction between Groups I-IX set forth in Office Action mailed on September 6, 2007 has been changed to a requirement for the election of species. This application contains claims directed to the following patentably distinct species:

- a. a plug-type de-header valve
- b. a ball-type de-header valve
- c. an adjusting wedge gate-type de-header valve
- d. a flexible wedge gate-type de-header valve
- e. a parallel slide gate-type de-header valve
- f. a solid wedge gate-type de-header valve
- g. a sliding blind gate-type de-header valve
- h. a globe-type de-header valve

The species are independent or distinct because the various valves are not disclosed as being capable of use together, and the various valves have different designs, modes of operation, and effects.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable.

As indicated in the response, Applicant has elected species g., drawn to a "sliding blind

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gate-type de-header valve". Claims 7 (in part) and 47-52 are readable on the elected species.

Currently, claims 1-6 and 8-10 are generic.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which depend from or otherwise require all the limitations of an allowable generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Claims 11-46 and 53-58 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

#### ***Terminal Disclaimer***

2. The terminal disclaimers filed June 18, 2007 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration dates of U.S. 6,660,131 and U.S. Application Nos. 11/151,055; 11/202,883; 11/396,982; 11/111,480 and 10/983,417 have been reviewed and is accepted. The terminal disclaimers have been recorded.

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 9, 10 and 47-52 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 9, it is unclear as to the structural relationship between "a steam purge system" and the other elements of the apparatus.

Regarding claim 10, it is unclear as to the structural relationship of "an internal material

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isolation and containment system" and the other elements of the apparatus.

Regarding claims 47-52, a "sliding blind gate-type de-header valve", as recited in the preamble of the claims, is considered indefinite. See MPEP 2173.05(b). The addition of the word "type" to an otherwise definite expression extends the scope of the expression so as to render it indefinite, because it is unclear what "type" is intended to convey. *Ex parte Copenhaver*, 109 USPQ 118 (Bd. App. 1955); *Ex parte Attig*, 7 USPQ2d 1092 (BPAI 1986).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-4, 7, 9, 10, 47-49 and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Payne et al. (US 2,403,608) in view of Maa (US 4,771,805).

Regarding claims 1, 2 and 7, Payne et al. (see FIG. 1; column 2, line 25 to column 4, line 22) discloses an apparatus comprising: (a) a coke drum (i.e., coking chamber 1) having at least one port therein, said coke drum receiving material therein from a manufacturing system and process (i.e., the coking chamber 1 receives an oil stream from tubular heating furnace 2); and (b) a de-header valve (i.e., closure 15, comprising a sliding valve or other suitable closure; see column 2, line 47 to column 3, line 1) coupled to said port of said coke drum 1 for regulating the throughput of coked material 7. The apparatus of Payne et al. is the same as the instantly claimed apparatus, except Payne et al. is silent as to the valve 15 having the claimed configuration.

Maa (FIGs. 1-3) teaches a sliding blind gate-type valve removably couple-able to a

pipeline or the like (see column 2, lines 39-44), said valve comprising:

- (1) a main body **10** having an orifice (i.e., passage **12**) dimensioned to align with said pipeline or the like when the valve is coupled thereto (i.e., via flanges **14**);
- (2) a valve closure (i.e., gate **26**) operably supported by said main body **10**, said valve closure **26** capable of being actuated to oscillate between an open position (see FIG. 2) and a closed position (see FIG. 1);
- (3) means for supporting said valve closure, said means comprising a seat support system (i.e., including seat carrier **20**, seal rings **58**, annular seat members **78**, annular members **80**; see FIGs. 6, 7; column 3, line 38 to column 4, line 33; column 6, lines 8-38);
- (c) a continuously maintained metal-to-metal contact seal between said valve closure **26** and said means for supporting said valve closure (see Abstract; column 6, lines 8-42); and
- (d) means for actuating said valve closure **26** (e.g., a stem **38** and hand wheel **42**; see column 2, line 67 to column 3, line 13).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to substitute the valve taught by Maa for the valve **15** in the apparatus of Payne et al., because the valve taught by Maa would have predictably provided a satisfactory means for isolating and regulating the flow of coked material from the coking chamber, given its suitability of use in high pressure and particular/particular fluid environments (see column 1, lines 10-20). Furthermore, the substitution of known equivalent structures involves only ordinary skill in the art. *In re Fout* 213 USPQ 532 (CCPA 1982); *In re Susi* 169 USPQ 423 (CCPA 1971); *In re Siebentritt* 152 USPQ 618 (CCPA 1967); *In re Ruff* 118 USPQ 343 (CCPA 1958), and when the prior art is altered by the mere substitution of one element for another known in the field, the

combination must do more than yield a predictable result, *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385 (2007).

Regarding claims 3 and 4, Maa teaches that the seat support system comprises dual, independent seats (i.e., seat members **78**) positioned opposite one another on either side of closure **26**, thus applying opposing forces upon said valve closure **26**, wherein said seats are dynamic, and wherein the seat support system comprises at least one live loaded seat and seat assembly (see FIG. 7; column 3, line 39 to column 4, line 33; column 6, lines 8-42).

Regarding claims 9 and 10, Payne et al., as best understood, discloses a steam purge system (i.e., steam, in regulated amounts, supplied via pipe **9** or **10**; see column 2, lines 40-43; see FIG. 1); and a material isolation and containment system (i.e., hopper **14**, which isolates coke via closures **15,16**; see FIG. 1).

Regarding claims 47 and 48, Payne et al. (see FIG. 1; column 2, line 25 to column 3, line 8) discloses a sliding blind gate-type deheader valve (i.e., a closure **15** for the coking drum **1**, comprising a slide valve or other suitable closures). Payne et al., however, is silent as to the sliding blind gate-type deheader valve **15** having the instantly claimed configuration.

Maa (see FIGs. 1-3) teaches a conventional sliding blind gate-type valve comprising: a main body **10** removably couple-able to a pipeline or the like (i.e., via flanges **14**; see column 2, lines 39-43), wherein said main body **10** comprises an orifice (i.e., passage **12**) dimensioned to align with an opening of a pipeline or the like; a valve closure comprising a blind (i.e., gate **26**) capable oscillating in a linear manner to open (see FIG. 2) and close (see FIG. 1) said valve; means for supporting said blind, wherein said means comprises a seat support system (i.e., including seat carrier **20**, seal rings **58**, annular seat members **78**, annular members **80**; see FIGs.

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6, 7; column 3, line 38 to column 4, line 33; column 6, lines 8-38); and a metal-to-metal contact seal created between said valve closure **26** and said means for supporting a valve closure (see Abstract; column 6, lines 8-42).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to substitute the valve taught by Maa for the valve **15** in the apparatus of Payne et al., because the valve taught by Maa would have predictably provided a satisfactory means for isolating and regulating the flow of coked material from the coking chamber, given its suitability of use in high pressure and particular/particular fluid environments (see column 1, lines 10-20). Furthermore, the substitution of known equivalent structures involves only ordinary skill in the art. *In re Fout* 213 USPQ 532 (CCPA 1982); *In re Susi* 169 USPQ 423 (CCPA 1971); *In re Siebentritt* 152 USPQ 618 (CCPA 1967); *In re Ruff* 118 USPQ 343 (CCPA 1958), and when the prior art is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result, *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385 (2007).

Regarding claim 49, Maa teaches that the seat support system comprises dual, independent live loaded dynamic seats (i.e., seat members **78** with annular members **80**; see FIG. 7; column 6, lines 8-38) positioned on opposing sides of said blind **26**.

Regarding claim 51, Maa teaches that the seat support system comprises a single seat positioned about said blind **26** (i.e., a single seat carrier **20** surrounds the blind **26**), said single seat comprising a dynamic seat (see column 3, line 39 to column 4, line 33; FIGs. 3, 7).

5. Claims 1-3, 5, 7, 9, 10, 47, 48 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Payne et al. (US 2,403,608) in view of Usnick et al. (US 4,174,728).



Regarding claims 1, 2 and 7, Payne et al. (see FIG. 1; column 2, line 25 to column 4, line 22) discloses an apparatus comprising: (a) a coke drum (i.e., coking chamber 1) having at least one port therein, said coke drum receiving material therein from a manufacturing system and process (i.e., the coking chamber 1 receives an oil stream from tubular heating furnace 2); and (b) a de-header valve (i.e., closure 15, comprising a sliding valve or other suitable closure; see column 2, line 47 to column 3, line 1) coupled to said port of said coke drum 1 for regulating the throughput of coked material 7. The apparatus of Payne et al. is the same as the instantly claimed apparatus, except Payne et al. is silent as to the valve 15 having the claimed configuration.

Usnick et al. (FIGs. 1-6; column 2, line 14 to 5, line 56) teaches a sliding blind gate-type valve removably couple-able to a process line (i.e., by means of tapped holes 25 on annular flanges 21, 23), said valve comprising:

- (1) a main body 11 having an orifice (i.e., channel 53);
- (2) a valve closure (i.e., gate 13) operably supported by said main body and capable of being actuated to oscillate between an open and closed position (see column 2, lines 31-42);
- (3) means for supporting said valve closure, said means comprising a seat support system (i.e., including lower seat 29, upper seat 31);
- (c) a continuously maintained metal to metal contact seal between the valve closure and the means for supporting said valve closure (see column 5, lines 2-34; column 4, lines 31-56); and
- (d) means for actuating the valve closure (i.e., shaft 20, with external pneumatic actuator 12).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to substitute the valve taught by Usnick et al. for the valve 15 in the apparatus of Payne et al., because the valve taught by Usnick et al. would have predictably provided a

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satisfactory means for isolating and regulating the flow of coked material from the coking chamber, given its suitability of use in controlling the flow of highly abrasive particles (see column 4, lines 31-40). Furthermore, the substitution of known equivalent structures involves only ordinary skill in the art. *In re Fout* 213 USPQ 532 (CCPA 1982); *In re Susi* 169 USPQ 423 (CCPA 1971); *In re Siebentritt* 152 USPQ 618 (CCPA 1967); *In re Ruff* 118 USPQ 343 (CCPA 1958), and when the prior art is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result, *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385 (2007).

Regarding claim 3, Usnick et al. teaches that the seat support system comprises dual, independent seats (i.e., lower seat **29** and upper seat **31**) positioned opposite one another on either side of the valve closure **13**, thus applying opposing forces upon the valve closure, said seats being selected from a static and a dynamic seat (see column 2, line 58 to column 3, line 22; also, column 5, lines 35-56).

Regarding claim 5, Usnick et al. teaches that the seat support system comprises at least one static seat/seat assembly (e.g., the lower seat **29**, supported by welded ring **27**, see column 2, lines 58-60; or, the lower seat **29**, welded to the lower flange **23**, see column 5, lines 39-41).

Regarding claim 9, Payne et al., as best understood, further discloses a steam purge system (i.e., steam, in regulated amounts, supplied via pipe **9** or **10**; see column 2, lines 40-43; see FIG. 1). Alternatively, Usnick et al. further teaches that the valve comprises a purge system (see column 3, lines 48-60; FIG. 1). It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide a purge system in the modified apparatus of Payne et al., because the purge system further reduces deposition and buildup of particulates on

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the sealing surfaces and also opposed deposition of particulates in the valve cavities, as taught by Usnick et al. (see column 4, lines 44-50). Although Usnick et al. does not specifically teach that steam may be used as the purge gas, Usnick et al. does indicate that "any suitable purge gas" may be used. Thus, it would have further been obvious for one of ordinary skill in the art at the time the invention was made to select steam for the purge gas in the modified apparatus of Payne et al., on the basis of suitability for the intended use and absent a showing of unexpected results thereof, because the Examiner takes Official Notice that steam would have been well recognized in the art as a suitable purge gas for removing particulates from valves.

Regarding claim 10, Payne et al., as best understood, discloses a material isolation and containment system (i.e., hopper **14**, which isolates coke via closures **15** and **16**; see FIG. 1).

Regarding claims 47 and 48, Payne et al. (see FIG. 1; column 2, line 25 to column 3, line 8) discloses a sliding blind gate-type deheader valve (i.e., a closure **15** for the coking drum **1**, comprising a slide valve or other suitable closure). Payne et al., however, is silent as to the sliding blind gate-type deheader valve **15** having the instantly claimed configuration.

Usnick et al. (FIGs. 1-6; column 2, line 14 to 5, line 56) teaches a sliding blind gate-type valve comprising: a main body **11** removably couple-able to a process line (i.e., by means of tapped holes **25** on annular flanges **21**, **23**), wherein said main body **11** comprises an orifice (i.e., a flow channel **53**) dimensioned to align with an opening of a process line (see column 2, lines 47-57); a valve closure comprising a blind (i.e., valve gate **13**) capable oscillating in a linear manner to open and close said valve (see column 2, lines 31-42); means for supporting said blind comprising a seat support system (i.e., an upper seat **31** and a lower seat **29**); and a metal-to-metal contact seal created between said valve closure **26** and said means for supporting a valve

closure **29,31** (see column 5, lines 2-34; also, column 4, lines 31-56).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to substitute the valve taught by Usnick et al. for the valve **15** in the apparatus of Payne et al., because the valve taught by Usnick et al. would have predictably provided a satisfactory means for isolating and regulating the flow of coked material from the coking chamber, given its suitability of use in controlling the flow of highly abrasive particles (see column 4, lines 31-40). Furthermore, the substitution of known equivalent structures involves only ordinary skill in the art. *In re Fout* 213 USPQ 532 (CCPA 1982); *In re Susi* 169 USPQ 423 (CCPA 1971); *In re Siebentritt* 152 USPQ 618 (CCPA 1967); *In re Ruff* 118 USPQ 343 (CCPA 1958), and when the prior art is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result, *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385 (2007).

Regarding claim 50, Usnick teaches that the seat support system **29, 31** comprise dual, independent static seats positioned on opposing sides of the blind **13** (see FIG. 4; column 2, line 58 to column 3, line 22; column 5, lines 12-34).

6. Claims 1-7, 9, 10 and 47-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Payne et al. (US 2,403,608) in view of Marx et al. (US 5,927,684).

Regarding claims 1, 2 and 7, Payne et al. (see FIG. 1; column 2, line 25 to column 4, line 22) discloses an apparatus comprising: (a) a coke drum (i.e., coking chamber **1**) having at least one port therein, said coke drum receiving material therein from a manufacturing system and process (i.e., the coking chamber **1** receives an oil stream from tubular heating furnace **2**); and (b) a de-header valve (i.e., closure **15**, comprising a sliding valve or other suitable closure; see

column 2, line 47 to column 3, line 1) coupled to said port of said coke drum **1** for regulating the throughput of coked material **7**. The apparatus of Payne et al. is the same as the instantly claimed apparatus, except Payne et al. is silent as to the valve **15** having the claimed configuration.

Marx et al. teaches a sliding blind gate-type valve **10** removably couple-able to a pipe (i.e., via holes provided on its annular flanges, not labeled; see FIG. 8), said valve comprising:

- (1) a main body (i.e., casing **11**) having an orifice (i.e., passage **17**);
- (2) a valve closure (i.e., slide plate **16**) operably supported by said main body, said valve closure capable of being actuated to oscillate between an open and closed position;
- (3) means for supporting said valve closure, said means comprising a seat support system (i.e., including seal rings **23, 35** with armouring **25, 36**);
- (c) a continuously maintained metal to metal contact seal between said valve closure **16** and said means for supporting said valve closure (i.e., metallic sealing at surfaces **14, 15**; see column 2, lines 52-60; column 3, lines 16-25 and 32-37); and
- (d) means for actuating said valve closure (i.e., via rod **19** and drive system **18**; see FIG. 9).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to substitute the valve taught by Marx et al. for the valve **15** in the apparatus of Payne et al., because the valve taught by Marx et al. would have predictably provided a satisfactory means for isolating and regulating the flow of coked material from the coking chamber, given its suitability of use in controlling the flow of particulate containing streams (see column 1, lines 21-33). Furthermore, the substitution of known equivalent structures involves only ordinary skill in the art. *In re Fout* 213 USPQ 532 (CCPA 1982); *In re Susi* 169 USPQ 423 (CCPA 1971); *In re Siebentritt* 152 USPQ 618 (CCPA 1967); *In re Ruff* 118 USPQ 343 (CCPA 1958), and when

the prior art is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result, *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385 (2007).

Regarding claims 3-6, Marx et al. teaches that the seat support system comprises dual, independent seats **23/25** and **35/36** positioned opposite one another on either side of the closure **16**, thus applying opposing forces upon said closure **16**, said seats being selected from a static and a dynamic seat. For instance, the seat support system may comprise at least one live loaded seat and seat assembly, at least one static seat and seat assembly, or a static seat positioned opposite a complimentary live loaded seat (e.g., a live-loaded seat **23/25**, opposite a static seat **35/36**; see FIG. 6; column 5, lines 58-61; column 6, lines 5-14).

Regarding claims 9 and 10, Payne et al., as best understood, discloses a steam purge system (i.e., steam, in regulated amounts, supplied via pipe **9** or **10**; see column 2, lines 40-43; see FIG. 1) and a material isolation and containment system (i.e., a discharge hopper **14**, which isolates coked material via closures **15,16**; see FIG. 1).

Regarding claims 47 and 48, Payne et al. (see FIG. 1; column 2, line 25 to column 3, line 8) discloses a sliding blind gate-type deheader valve (i.e., a closure **15** for the coking drum **1**, comprising "slide valves or other suitable closures"). Payne et al., however, is silent as to the sliding blind gate-type deheader valve **15** having the instantly claimed configuration.

Marx et al. teaches a sliding blind gate-type valve **10** comprising: a main body **11** removably couple-able to a pipe (i.e., via holes provided on its annular flanges, not labeled; see FIG. 8), wherein said main body comprises an orifice (i.e., fluid passage **17**); a valve closure comprising a blind (i.e., slide plate **16**) capable oscillating in a linear manner to open and close

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said valve; means for supporting said blind, said means comprising a seat support system (i.e., including seal rings **23, 35** with armouring **25, 36**); and a metal to metal contact seal created between said valve closure and said means for supporting a valve closure (i.e., metallic sealing at surfaces **14, 15**; see column 2, lines 52-60; column 3, lines 16-25 and 32-37).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to substitute the valve taught by Marx et al. for the valve **15** in the apparatus of Payne et al., because the valve taught by Marx et al. would have predictably provided a satisfactory means for isolating and regulating the flow of coked material from the coking chamber, given its suitability of use in controlling the flow of particulate containing streams (see column 1, lines 21-33). Furthermore, the substitution of known equivalent structures involves only ordinary skill in the art. *In re Fout* 213 USPQ 532 (CCPA 1982); *In re Susi* 169 USPQ 423 (CCPA 1971); *In re Siebentritt* 152 USPQ 618 (CCPA 1967); *In re Ruff* 118 USPQ 343 (CCPA 1958), and when the prior art is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result, *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385 (2007).

Regarding claim 49, Marx et al. teaches that said seat support system comprises dual, independent live loaded dynamic seats positioned on opposing sides of said blind (i.e., the seats may be pre-stressed on both sides of the slide plate **16**; see column 5, lines 58-60).

7. Claims 1, 2, 7-10, 47, 48 and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Payne et al. (US 2,403,608) in view of Riley (US 2,064,567).

Regarding claims 1, 2, 7 and 8, Payne et al. (see FIG. 1; column 2, line 25 to column 4, line 22) discloses an apparatus comprising: (a) a coke drum (i.e., chamber **1**) having at least one

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port therein, said coke drum receiving material therein from a manufacturing system and process (i.e., the coking chamber 1 receives an oil stream from tubular heating furnace 2); and (b) a de-header valve (i.e., closure 15, comprising a sliding valve or other suitable closure; see column 2, line 47 to column 3, line 1) coupled to said port of said coke drum 1 for regulating the throughput of coked material 7. The apparatus of Payne et al. is the same as the instantly claimed apparatus, except Payne et al. is silent as to the valve 15 having the claimed configuration.

Riley teaches a sliding blind gate-type valve 20 comprising:

- (1) a main body (i.e., a casing 21) having an orifice (i.e., flow passage 22);
- (2) a valve closure (i.e., a metal gate 26; see page 1, column 2, lines 28-33) operably supported by said main body, said valve closure capable of being actuated to oscillate between an open position (see FIG. 1) and closed position (see FIG. 2) with respect to said orifice;
- (3) means for supporting said valve closure, said means comprising a seat support system comprising portions of said main body (i.e., grooved seat 38, with faces 39, 41; FIGs. 3, 4; page 1, column 2, lines 33-40) adapted to support said valve closure and provide said contact seal;
- (c) a continuously maintained contact seal (i.e., against seat 39) between said valve closure and said means for supporting said valve closure (see FIG. 4; page 2, column 2, lines 57-75); and
- (d) means for actuating said valve closure 26 (i.e., via rack 32 and handwheel 36).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to substitute the valve taught by Riley for the valve 15 in the apparatus of Payne et al., because the valve taught by Riley would have predictably provided a satisfactory means for isolating and regulating the flow of coked material from the coking chamber, given its suitability of use in controlling the flow of particulate containing streams, without clogging (see page 1,



column 1, lines 1-31). Furthermore, the substitution of known equivalent structures involves only ordinary skill in the art. *In re Fout* 213 USPQ 532 (CCPA 1982); *In re Susi* 169 USPQ 423 (CCPA 1971); *In re Siebentritt* 152 USPQ 618 (CCPA 1967); *In re Ruff* 118 USPQ 343 (CCPA 1958), and when the prior art is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result, *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385 (2007).

Additionally, although Riley does not specifically state that the body **21** is formed from metal, such that the contact seal at **39** is metal to metal, it would have been obvious for one of ordinary skill in the art at the time the invention was made to select a metal for forming the main body in the modified apparatus of Payne et al., because the Examiner takes Official Notice that the construction of valve bodies from metal, and the provision of metal to metal sealing in particulate containing environments, would have been considered conventional in the art.

Regarding claims 9 and 10, Payne et al., as best understood, discloses a steam purge system (i.e., steam, in regulated amounts, supplied via pipe **9** or **10**; see column 2, lines 40-43; see FIG. 1) and a material isolation and containment system (i.e., a discharge hopper **14**, which isolates coked material via closures **15,16**; see FIG. 1).

Regarding claims 47, 48 and 52, Payne et al. (see FIG. 1; column 2, line 25 to column 3, line 8) discloses a sliding blind gate-type deheader valve (i.e., a closure **15** for the coking drum **1**, comprising “slide valves or other suitable closures”). Payne et al., however, is silent as to the sliding blind gate-type deheader valve **15** having the instantly claimed configuration.

Riley teaches a sliding blind gate-type valve comprising: a main body **21** comprising an orifice **22**; a valve closure comprising a blind (i.e., a metal gate **26**; see page 1, column 2, lines

28-33) capable oscillating in a linear manner (i.e., using rack **32** and handwheel **36**) to open and close said valve; means for supporting said blind, said means comprising a seat support system comprising portions of said main body (i.e., grooved seat **38**, with faces **39**, **41**; see FIGs. 3, 4; also, page 1, column 2, lines 33-40) adapted to support said valve closure and provide said contact seal; and a contact seal (i.e., against seat **39**) created between said valve closure **26** and said means for supporting a valve closure (see FIG. 4; page 2, column 2, lines 57-75).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to substitute the valve taught by Riley for the valve **15** in the apparatus of Payne et al., because the valve taught by Riley would have predictably provided a satisfactory means for isolating and regulating the flow of coked material from the coking chamber, given its suitability of use in controlling the flow of particulate containing streams, without clogging (see page 1, column 1, lines 1-31). Furthermore, the substitution of known equivalent structures involves only ordinary skill in the art. *In re Fout* 213 USPQ 532 (CCPA 1982); *In re Susi* 169 USPQ 423 (CCPA 1971); *In re Siebentritt* 152 USPQ 618 (CCPA 1967); *In re Ruff* 118 USPQ 343 (CCPA 1958), and when the prior art is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result, *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385 (2007).

Additionally, although Riley does not specifically state that the body **21** is formed from metal, such that the contact seal at **39** is metal to metal, it would have been obvious for one of ordinary skill in the art at the time the invention was made to select a metal for forming the main body in the modified apparatus of Payne et al., because the Examiner takes Official Notice that the construction of valve bodies from metal, and the provision of metal to metal sealing in

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particulate containing environments, would have been considered conventional in the art.

***Response to Arguments***

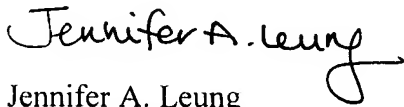
8. Applicant's arguments with respect to claims 1-10 and 47-52 have been considered but are moot in view of the new ground(s) of rejection, in view of the newly found prior art.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Leung whose telephone number is (571) 272-1449. The examiner can normally be reached on 9:30 am - 5:30 pm Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Jennifer A. Leung  
December 5, 2007